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Stability and Fluctuation of Personality Disorder Features in Daily Life

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Abstract

Very little is known about the daily stability and fluctuation of personality pathology. To address this gap in knowledge, we investigated the naturalistic manifestation of personality pathology over the course of 100 days. A group of individuals ($N=101$) diagnosed with any personality disorder (PD) completed a daily diary study over 100 consecutive days ($Mdn = 94$ days, $Range = 33-101$ days). Participants completed daily ratings of 30 manifestations of personality pathology. Patterns of stability and variability over the course of the study were then examined. Results indicated that individual PD manifestations and domains of PD manifestations were variable across days and differed widely in their frequency. Additionally, individual averages and level of variability in PD domains were highly stable across months, individual averages of PD domains were predicted by baseline dispositional ratings of PD traits with a high degree of specificity, and daily variability PD domains was associated with elevated levels of PD traits. This pattern of findings suggests that dynamic processes of symptom exacerbation and diminution that are stable in mean level and variability in expression over time characterizes personality pathology. Further, dispositional ratings are significant predictors of average daily expression of PD features.

General Scientific Summary

The general definition of personality disorders includes descriptors of the relative stability in their expression (e.g., “enduring,” “pervasive,” “inflexible”). This naturalistic daily diary study shows that personality disorders are, in fact, a combination of stability and variability in their expression.

Keywords

Personality disorders; personality pathology; daily diary methods; intensive repeated measurement; ambulatory assessment

Stability and Fluctuation of Personality Disorder Features in Daily Life

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM) has traditionally defined personality disorders (PDs) as “enduring,” “pervasive,” and “inflexible” (American

Psychiatric Association, 2013; pp. 645–647). Each of these descriptors addresses the presumed degree of stability and variability in the expression of the pathology across time and diverse situations. Over the past 25 years, several prospective multi-wave studies have examined patterns of stability and change in PD over the long term (i.e., years), finding that PD was not as stable as once thought, although the results reveal a complexity of stability and change over time (see Morey & Hopwood, 2013 for a review). Together this work has addressed questions of stability over the macro-scale (i.e., years to decades), but similar efforts to broadly study stability and variability in PD features over the micro-scale (i.e., hours to days) has yet to be undertaken.

This is despite the fact that clinical description and theories of personality pathology emphasize characteristics such as interpersonal, self, and affect dysregulation, triggering events, maladaptive regulatory behavior, all-or-none thinking (i.e., splitting), and vicious cycles (e.g., Beck et al., 2004; Benjamin, 1996; Carson, 1991; Kernberg, 1984; Linehan, 1993; Meyer & Pilkonis, 2005; Pincus, 2005). Each of these is, or captures a component of, a dynamic process that would presumably result in considerable variability in symptom expression over time and across diverse situations in daily life. Yet, with few exceptions (e.g., affective instability in borderline personality disorder; Santangelo, Bohus, & Ebner-Primer, 2014; Trull et al., 2008), assertions about the actual degree of stability and fluctuation in daily PD symptom expression largely has been uninformed by systematic empirical study, and relevant data are scarce. The aim of the current research was to address this gap in fundamental knowledge by examining the manifestations of PD traits in daily life. In addition, we sought to link the daily expression and variability of PD features to dispositionally assessed pathological personality traits.

Shifting Perspectives on Personality and its Pathology

Diagnostic nosologies should link tightly to the basic sciences that underpin them in relevant domains. However, there has been a longstanding disconnect between the structural models employed by basic personality science and the manner in which PDs are conceptualized in the DSM. The largest discrepancy is that personality science supports continuously distributed individual differences in characteristic manners of thinking, feeling, and behaving, whereas the DSM has used a discrete, categorical model of PD since 1980. In the intervening years the DSM's PD model has sustained sharp criticism (Krueger & Eaton, 2010; Trull & Durrett, 2005; Widiger & Simonsen, 2005; Widiger & Trull, 2007). The criticism ultimately led to a proposal for a shift from categorical diagnoses to hierarchically organized pathological personality traits in DSM-5 (Krueger, 2013; Skodol et al., 2013). As a result, the DSM-5 includes two full models of PD. One model, in Section II of the manual, replicates essentially in its entirety the DSM-IV PD model. The second model, included as a full alternative model of PD (AMPD) in the "Emerging Models and Measures" section (III) of the manual, uses a hierarchical dimensional trait model that bears strong resemblance and has been empirically linked to the big-5/five-factor model of personality (Gore & Widiger, 2013; Thomas et al., 2013; Wright & Simms, 2014). Including this dimensional trait model addresses much of the trenchant criticism of the extant PD model and represents a concrete step in the direction of a more scientifically supported nosology of PD.

Further, the AMPD has begun to incorporate research on the long-term plasticity of PD, and now refers to PD as “relatively” stable in Criterion C, and it further notes, “personality traits...are more stable than the symptomatic expression of these dispositions” (American Psychiatric Association, 2013; pp. 763). The Section II model has seen no such update. However, the AMPD remains largely uninformed by systematic studies of micro time-scale manifestations of PD traits. Recently there has been an increased emphasis on directly studying the short-term variability in manifestations and the dynamic processes of basic personality traits (Fleeson & Gallagher, 2009). Similar approaches, applied to PD traits, would provide the necessary data to continue to develop a scientific model of PD that would include the dynamic processes so often referenced in clinical theories.

Indeed, although the study of personality has generally focused on the cross-situational generality in behavior and employed methods designed for elucidating *between-person (i.e., individual) differences* (Read et al., 2010), there have also been a consistent efforts to describe personality in dynamic terms, focusing on *within-person variability* and characteristic patterns of behavior that vary across time and situations (e.g., Carver & Scheier, 1982; Cervone, 2005; Eid & Diener, 1999; Larsen, 1987; Mischel & Shoda, 1995; Moskowitz & Zuroff, 2004). Contemporary theorists have sought to create synthetic accounts of traits, formalizing the manner in which distributions of states or ensembles of dynamic processes result in the cross-situational generality understood as basic personality traits (DeYoung, 2015; Fleeson & Jayawickreme, 2015; Fournier, Moskowitz, & Zuroff, 2009; Revelle & Condon, 2015). A growing body of basic research that uses intensive repeated measurement in naturalistic settings (i.e., ambulatory assessment, ecological momentary assessment, experience sampling methodology, and diary methods) supports this view, finding high intraindividual (i.e., within-person) variability in personality states in daily living, even as individuals reliably differ in average levels of trait expression (e.g., Fleeson, 2001; Fleeson & Gallagher, 2009; Judge, Simon, Hurst, & Kelley, 2014; Moskowitz & Zuroff, 2004; Sherman, Rauthmann, Brown, Serfass, & Jones, 2015).

Shifting emphases and methodological advances have ushered in the study of several important dynamic processes of personality. These include the situational contingencies that predict trait behavior (e.g., Sherman et al., 2015), mechanistic processes of trait manifestation in situations (e.g., McCabe & Fleeson, 2012), individual differences in the within-person coupling of behaviors (e.g., Beckmann, Wood, & Minbashian, 2010; Fournier et al., 2009), and person-by-situation interactions (e.g., Suls & Martin, 2005). Each of these lines of inquiry is predicated on the knowledge that traits encompass both reliable individual differences as well as variability in behavior across time in order to meet the demands of daily life. Each of these also is analogous to important questions standing in the way of more a mechanistic understanding of PD, including establishing the proximal antecedents (both environmental and internal), contingencies, and processes of exacerbation, maintenance, and diminution of PD symptoms. With the shifts in PD models from discrete categorical diagnoses to a dimensional trait model now underway, the next major step will involve understanding the nuances of expression and variability over time and situations, as has been the direction in basic personality science. However, comparable evidence of the relative stability or variability in PD features is currently lacking.

Short-term Variability in Personality Disorder Features

Mirroring the interest in studying dynamic processes in personality, over the past 15 years there has been considerable interest in studying the dynamic processes of psychopathology as they unfold in the naturalistic settings of daily life (e.g., Berg et al., 2013; Ebner-Priemer et al., 2007; Muehlenkamp et al., 2009; Myin-Germeys, van Os, Schwartz, Stone, & Delespaul, 2001; Pe et al., 2015; Sadikaj et al., 2013; Shiffman et al., 2002; Silk, Steinberg, & Morris, 2003; Smyth et al., 2007; Trull et al., 2008; Wegner et al., 2002; see also Myin-Germeys et al., 2009 and Trull & Ebner-Priemer, 2013 for reviews). A portion of this work has focused on studying daily variability and instability in PD relevant behavior (e.g., Ebner-Priemer et al., 2007; Ebner-Primer et al., 2015; Miskewicz et al., 2015; Russell et al., 2007; Sadikaj et al., 2010; 2013; Trull et al., 2008). However, this work has almost exclusively focused on borderline personality disorder (BPD), comparing samples diagnosed with BPD with various controls (See Santangelo et al., 2014 for a review). This is the natural starting point for this type of investigation, as BPD has long been defined by instability of affect, interpersonal vacillations, and impulsivity (American Psychiatric Association, 1980; Schmeideberg, 1947), but does not fully address broader questions of short-term variability in the manifestations of personality pathology.

For instance, in their review of ecological momentary assessment studies for BPD, Santangelo et al. (2014) note that although the extant literature has convincingly addressed issues related to heightened instability in affect in BPD relative to control groups of various types, a number of the diverse symptom domains remain relatively understudied (e.g., impulsivity inappropriate anger, emptiness, fears of abandonment), although this is changing (e.g., Hepp, Carpenter, Lane, & Trull, in press; Law, Fleeson, Arnold, & Furr, 2016; Miskewicz et al., 2015; Tomko et al., 2014). Beyond these gaps in the literature, the near exclusive focus on BPD to the exclusion of other diagnoses simultaneously limits the generalizability of the findings, while also creating ambiguity about which basic domains of functioning are driving the daily expression of maladaptive behaviors given the high rates of diagnostic co-occurrence (e.g., Skodol et al., 2002) and the well established within-diagnosis heterogeneity (e.g., Hallquist & Pilkonis, 2012; Lenzenweger et al., 2008; Wright et al., 2013). Thus, it remains unknown how frequent and variable are the manifestations of PD in daily life, more generally. In order to address fundamental questions about the expression of personality pathology in daily life (e.g., frequency, variability, individual differences) a study of short-term variability in personality pathology that includes a broader sampling of diagnoses and daily PD trait manifestations is needed.

The Current Study

The current study was designed to address the lack of research on the relative short-term stability and variability of PD manifestations in daily life, as a first step toward the ultimate aim of gaining a more nuanced and powerful understanding of the processes and mechanisms that underlie pathological personality functioning. To do so, we followed a sample of individuals previously diagnosed with any of the DSM-IV PDs ($N=101$) over the course of 100 days using daily diaries of PD trait manifestations. In contrast to previous studies, we prioritized breadth and generalizability in this study, and therefore sought to recruit individuals without diagnostic restriction, allowing individuals with any PD to be

included. This approach was adopted to ensure ample variability in the crosscutting dimensions of the DSM-5 PD traits, which served as predictors of individual differences in daily PD manifestation. Daily sampling over a sizeable time-period was chosen to ensure adequate sampling of manifestations of interest, many of which were anticipated to be relatively infrequent (e.g., hostile behavior).

We sought to answer several basic but previously unanswered questions about the pattern of daily PD trait expression. Specifically, we sought to address the following questions. *How variable is the expression of personality pathology from day-to-day?* This includes how frequent or infrequent specific manifestations occur, as well as the proportion of total variance in manifestations that can be attributed to individual differences in average levels as opposed to daily fluctuations. *How stable are individual differences in average levels and fluctuations in daily PD manifestations?* In other words, are the mean levels and variability calculated over days both individual differences that are stable over time? *Are daily mean levels of PD features predicted by dispositionally rated personality traits?* Finally, we asked, *are individual differences in PD feature fluctuation predicted by dispositionally rated personality traits?*

Method

Participants

The project aimed to investigate general daily processes of behavior in individuals with PD. As such, recruitment targeted individuals diagnosed with *any* PD from a clinical sample ($N=628$) enrolled in an ongoing study to improve efficient measurement of PD (Simms et al., 2011). Participants were recruited into the broader sample by distributing flyers at mental health clinics across Western New York, and were eligible for participation in the parent study if they reported psychiatric treatment within the past two years. Participants received structured clinical interviews for clinical syndromes and PDs by trained assessors using a version of the Structured Clinical Interview for DSM-IV-TR Personality Disorders (SCID-II; First et al., 1997). Only diagnoses of specific PD types were evaluated, and PD-NOS was not evaluated or diagnosed. SCID-II disorder-level Kappas from independent ratings of a subset of participants ($n=120$) for the 10 DSM-IV PDs were strong ($Mdn K = .96$; $range = .82-1.00$). Those who met the threshold for *any* PD diagnosis on the clinical interview were contacted for possible participation in the current daily diary study. The sole additional requirement for participation was daily Internet access via computer or mobile device, with no additional exclusionary criteria.

One hundred and sixteen participants attended the baseline assessment for the daily diary study. Due to the focus on variability in behavior in this study, only participants providing at least 30 days worth of data were included to ensure reliable estimates of variability. Only 15 individuals were excluded for providing less than 30 diaries, resulting in an effective sample size of 101. Of the retained participants, 66 (65.3%) were female, and the majority reported being either white (82.2%) or African American (14.9%). On average, time between the initial diagnostic interview and the baseline assessment in this study was 1.4 years ($Range = 1.2-1.7$ years; $SD = 0.16$ years). The PD diagnosis base rates were as follows: 35.6% paranoid, 13.9% schizoid, 16.8% schizotypal, 7.9% antisocial, 36.6% borderline, 2.0%

histrionic, 19.8% narcissistic, 53.5% avoidant, 5.9% dependent, 50.5% obsessive-compulsive. The average number of PD diagnoses per participant was 2.4. Additionally, 62.4% were diagnosed with mood disorders, 69.3% with anxiety disorders, 8.9% with psychotic disorders, and 23% with substance/alcohol use disorders. Demographics for the retained sample are presented in Table 1. Seventy-two percent of participants reported current outpatient mental health care treatment, 14% within the last year, and the remainder longer than one year prior to the daily diary protocol.

Procedure

Written informed consent was obtained prior to participation. The relevant institutional review board approved all study procedures. Participants attended an in-person training and assessment session during which study procedures were explained, and self-report measures were completed via computer. Starting the evening of the in-person assessment, participants began completing daily diaries via secure website every evening for 100 consecutive days. Surveys were to be completed at (roughly) the same time each day, between 8pm and 12am. However, participants were allowed to deviate from this schedule if necessary (e.g., working nightshift) so long as (a) they completed diaries at the end of their day, and (b) the diaries were completed at roughly the same time each day. Participants received daily email reminders and also were provided several paper diaries they could use in the event of technological difficulties. Compliance rates were very high, with a total of 9,041 diaries completed by participants in this study after data cleaning ($Mdn = 94$ days, $M = 89.5$ days, $range = 33-101$ days, $90\% > 60$ days), a small fraction of which were done by paper (~2% of completed diaries). Compensation was provided for daily participation at the rate of \$100 for 80% participation, and prorated at \$1/day for < 80%. Participation also was incentivized through recurring raffles (\$10 drawing every 5 days for those providing at least 4 diaries) and drawings for additional money and tablet computers at the end of the study, with the odds of winning proportionally tied to participation.

Measures

Daily Personality Pathology Manifestations—Daily expression of PD was measured using 30 items created for this project. Items were organized on to nine daily domain scales: *Negative Affectivity*, *Urgency*, *Detachment*, *Exhibitionism*, *Hostility*, *Manipulativeness*, *Impulsivity*, *Compulsivity*, and *Psychoticism*. Details related to items and scale development can be found in the supplementary material (see also Supplementary Table S1). Daily items included the stem, “*Over the past 24 hours...*” and were rated on an 8-point response scale for each item anchored with *Not at All* (0) and *Very Much So* (7). Reliabilities for each daily domain scale were calculated using multilevel coefficient alphas (Geldhof et al., 2014) based on polychoric correlation coefficients to account for non-normality in the items. Alphas for both within- and between-person levels can be found in the lower half of Table 2. The average within-person alpha was .69 ($Range = .49$ to $.87$) and between-person was .84 ($Range = .77$ to $.95$).

Pathological Personality Traits—Pathological personality traits were assessed at the baseline of the current study (i.e., the day the participants started the daily diary) using the Personality Inventory for DSM-5 (PID5; Krueger et al., 2012), which is 220-item a self-

report instrument measuring 25 DSM-5 Section III PD traits, organized into five broad domains: Negative Affectivity, Detachment, Antagonism, Disinhibition, and Psychoticism. PID5 items are rated on a four-point Likert scale ranging from 0 (*very false or often false*) to 3 (*very true or often true*). Internal consistencies of the scales were adequate to high in the current sample ($Mdn \alpha = .86$; Range = $.72 - .95$), and information related to mean scale endorsement is available in the supplementary materials (see Table S4). A number of the PID5 scales load on multiple higher-order dimensions (e.g., Hostility, Depressivity; Krueger et al., 2012; Wright et al., 2012). Thus, we scored the PID5 higher-order domains by averaging the scores on scales that have demonstrated strong discriminant validity (i.e., that they primarily index only one factor) as follows: *Negative Affectivity* – Anxiousness, Emotional Lability, Separation Insecurity; *Detachment* – Withdrawal, Anhedonia, Intimacy Avoidance; *Antagonism* – Manipulativeness, Deceitfulness, Grandiosity; *Disinhibition* – Irresponsibility, Impulsivity, Distractibility; *Psychoticism* – Unusual Beliefs and Experiences, Eccentricity, Perceptual Dysregulation. Scores were standardized in the current sample.

Analyses

Our first aim was to establish the general patterning and individual differences in the manifestation of PD traits over the course of 100 days. We calculated proportions of individual item endorsement and descriptive statistics for each daily PD domain. We then examined the proportion of total variance in individual items and domain scores attributable to individual differences (i.e., between-person variability) as opposed to daily fluctuations (i.e., within-person variability). See Figure 1 for an example with a single domain. To isolate the variance in daily PD manifestations attributable to individual differences, we calculated the intraclass correlation (ICC) from unconditional multilevel models (MLMs) with daily PD items and domain scores as the outcomes, which can be interpreted as the proportion of total variance accounted for at the between-person level. Within-person variance is therefore calculated as $1.0 - ICC$.

We next sought to establish whether individual differences in average levels and within-person variability of daily PD trait manifestation are stable features of individuals (See Figure 2 and Supplementary Figures). We split the individual time-series roughly into thirds (i.e., 33-days, 33-days, 34-days), and calculated individual means (*iMs*) and individual standard deviation (*iSDs*) for each third. We then correlated resulting *iM* and *iSD* scores across each third.

Then we examined whether individual differences in daily domains were predicted by dispositionally rated pathological personality traits at baseline. These associations were tested using MLMs, which account for the differences between participants in rates of completion in daily diaries in the calculation of these effects. In these models daily PD domains served as the Level 1 outcomes, and were regressed on standard covariates of sex and age at Level 2. Each PID5 domain score was then entered individually as a predictor at Level 2 to establish bivariate associations, and then all five domains were entered simultaneously to establish unique associations controlling for all other traits.

Finally, we tested the association between dispositionally rated traits and within-person variability by regressing daily domain scale *iSDs* on PID5 scores. Mirroring the preceding MLMs, we controlled for sex and age in all models, and first entered each dispositional scale as a univariate predictor. Subsequently, we reran each of these models controlling for the mean of the daily dimensional scale, given the frequently noted association between the means and variances of intensive repeated measurements in psychology (Eid & Diener, 1999). As a last step we entered all PID5 scales as simultaneous predictors in addition to the means.

Results

As a first step, we examined what proportion of variance in daily PD manifestation was attributable to between-person differences by calculating ICCs from intercept only MLMs. ICCs for individual items and domains are provided in Table 2. All within- and between-person variance coefficients were significant ($p < .001$). At the item level, the average ICC was .47 (*Range* = .10 – .77), whereas at the domain level the average ICC was .51 (*Range* = .33 – .70). This suggests that, on average, approximately half of the variance in the daily manifestation of PD traits can be attributed to individual differences, and the remaining half attributed to daily fluctuations. However, we found wide ranges in the proportion of variance attributed to between-person differences depending on the specific feature or domain. Features and domains associated with Urgency, Hostility, Manipulativeness, and Impulsivity had the lowest ICCs, whereas Negative Affectivity and Psychoticism were associated with the largest ICCs.

Table 2 also summarizes patterns of endorsement for each feature and domain. In the third column of the upper half of the table, it can be seen that individual features varied considerably in terms of the proportion of the sample that ever endorsed them, ranging from 100% of the sample endorsing Emotional Lability and Anhedonia to some degree at some point during the 100 days, to only 58% of the sample endorsing Hearing Things and 55% endorsing Risk Taking. In terms of overall rates of endorsement, the category most frequently endorsed for every feature was 0 (*Not at all*), with rates of endorsement generally decreasing with each unit of the scale, although this was not uniformly the case (e.g., 7 on Depressivity had higher rate of endorsement than 3, 4, 5, or 6). Note that all levels of each feature were endorsed to some degree. Distributional patterns of individual items were mirrored in the domains, which tended to be positively skewed, and in some cases had medians of 0.0.

Next, to test whether individual differences in level and variability of daily PD manifestation were stable, we split the time-series in to thirds (33-days) and calculated *iMs* and *iSDs* for each daily domain in each third. Table 3 contains descriptive statistics. We then correlated corresponding scales across thirds of the data to estimate differential stability of these features. Results for individual scales can be found in Table 4. On the whole, *iMs* and *iSDs* were highly stable across months, indicating that these are meaningful individual differences.

We then tested the extent to which individual differences in baseline dispositionally rated pathological personality traits predicted between-person differences in daily PD domains. Table 5 catalogues both the bivariate (each PID5 trait as a sole predictor) and multivariate or unique (all PID5 traits entered simultaneously) associations. All MLMs were estimated using robust standard errors and treating outcomes as continuously distributed.¹ As seen in the upper half of Table 5, with relatively few exceptions, baseline PID5 traits were significant predictors of individual differences in daily PD domains. This is consistent with the theoretical and empirical support for a general factor of personality pathology (e.g., Bender et al., 2011; Hopwood et al., 2011; Sharp et al., 2015), which leads to lack of specificity in external associations (e.g., Crego, Gore, Rojas, & Widiger, 2015).

To address this, we estimated multivariate models, the results of which are summarized in the bottom half of Table 5. In contrast to the univariate results, we found high degrees of specificity in these models, with patterns that conform to expected relations. For instance, PID5 Negative Affectivity only predicted daily Negative Affectivity; only PID5 Detachment significantly predicted daily Detachment; and only PID5 Psychoticism predicted daily Psychoticism. That daily Exhibitionism was predicted by both PID5 Detachment (negatively) and PID5 Antagonism (positively) is to be expected given that PID5 Antagonism is partially comprised of Grandiosity. Several anticipated effects either failed to emerge (daily Urgency, Hostility, and Impulsivity were not significantly predicted by PID5 domains) or were unexpected (daily Compulsivity was significantly predicted by PID5 Antagonism). In each of these cases the daily domain was a relatively more specific aspect of the broader conceptual domain. We therefore followed up the general analytic approach with more targeted tests using select PID5 facets as predictors instead of (replacing PID5 Negative Affectivity with PID5 Emotional Lability in predicting daily Urgency; replacing PID5 Disinhibition with PID5 Risk Taking in predicting daily Disinhibition) or in addition to (adding PID5 Hostility to the prediction of daily Hostility and PID5 Rigid Perfectionism in the prediction of daily Compulsivity) the PID5 domains. In the revised models PID5 Emotional Lability was the lone significant predictor of daily Urgency ($\beta = 0.33$, $SE = .14$, $p = .017$); PID5 Risk Taking was the exclusive significant predictor of daily Disinhibition ($\beta = 0.22$, $SE = .07$, $p = .002$); PID5 Hostility was the sole significant predictor of daily Hostility ($\beta = 0.38$, $SE = .15$, $p = .013$); and PID5 Rigid Perfectionism was a significant predictor of daily Compulsivity ($\beta = 0.51$, $SE = .15$, $p = .001$).

We used the change in pseudo- R^2 (R^2 ; i.e., the proportion reduction in Level 2 variance; [Unconditional σ^2 - Conditional σ^2]/Unconditional σ^2 ; Snidjers & Bosker, 1994) to estimate the combined incremental effect size of PID5 domains in predicting individual differences in daily PD domain endorsement above standard covariates. Results were as follows: Negative

¹As noted above, the daily PD domains were generally non-normally distributed, sometimes with high values of skew and kurtosis along with large proportions of zero values. Non-normality in the distribution of outcomes can often result in a failure to meet assumptions of linear models. Therefore, all models were re-run using Box-Cox transformations of the outcomes in order to normalize them. Additionally, all models were re-estimated as generalized MLMs using sums of facets instead of means for the domains and treating them as counts, using a variety of count distributions designed to accommodate large proportions of zeros and high positive skew such as the negative binomial, zero-inflated Poisson, and zero-inflated negative binomial distributions (see e.g., Atkins & Gallop, 2007; Long, 1996). Regardless of how the outcome was modeled, the pattern of significant effects and effect sizes were the same. Therefore we report the conceptually less complex linear models here. Prior applied work has found conclusions drawn from linear models to be robust to the types of distributions observed here (see e.g., Creswell, Bachrach, Wright, Pinto, & Ansell, 2016; Wright, Pincus, & Lenzenweger, 2012).

Affectivity $R^2 = .41$; Urgency $R^2 = .27$; Detachment $R^2 = .45$; Exhibitionism $R^2 = .27$; Hostility $R^2 = .28$; Manipulativeness $R^2 = .18$; Impulsivity $R^2 = .31$; Compulsivity $R^2 = .22$; and Psychoticism $R^2 = .39$. See also Supplementary Table S5. Thus, dispositional trait ratings accounted for sizable proportions of the individual differences in PD as assessed by daily diary (~1/5-2/5's of the variance), despite being assessed using different methodologies.

Finally, Table 6 includes the results of predicting *iSDs* from PID5 traits, controlling and not controlling for the mean. Multivariate models are not included in Table 6, as only a single effect remained significant across all multivariate models, and is therefore not interpreted.

Discussion

Very little is known about the daily expression of personality pathology beyond affective variability in BPD. To address this gap in knowledge, we investigated the naturalistic manifestation of personality pathology over the course of 100 days. Participants diagnosed with any PD reported on 30 PD trait relevant manifestations that were organized into 9 domains. We found that daily PD manifestations were relatively variable, fluctuating considerably across days. As expected, we found that individuals differed not only in average levels of daily PD features, but also in how variable they were (see Figure 2 and Supplementary figures for individual time series of each domain), and these individual differences were stable from month to month. Moreover, average daily levels of PD manifestation were associated with dispositionally related PD traits at baseline with high specificity. Taken together, these results suggest that personality pathology is a blend of both stable and variable features, and the integration of stable and dynamic aspects are important for fully understanding PDs. We consider each of these findings and their implications for the conceptualization of personality pathology in turn.

We first asked, *how variable is the expression of personality pathology from day-to-day?* At the most basic descriptive level, we found that the majority of our sample endorsed engaging in each specific daily PD item at some point during the study. These rates of endorsement ranged from lows of Risk Taking (55%) and Hearing Things (58%) to highs of Emotional Lability (100%) and Anhedonia (100%). The proportion endorsing individual features is likely to be sample dependent, and thus mostly confirms that we were successful in our goal of sampling a group of individuals with a broad range of personality pathology, albeit with greater representation of Internalizing relative to Externalizing psychopathology. Notable, however, is that the modal response for each feature, and the median for four of nine domains, was a daily endorsement of 0 (Not at all) on the response scale. Although the full range of the scales for each item was used by the sample, many manifestations were relatively infrequent. This was especially the case for manifestations subsumed by the domains of Hostility, Manipulativeness, Impulsivity, and Psychoticism domains. Features subsumed under the Negative Affectivity and Detachment domains were endorsed with relatively higher frequency.

The question we posed is most directly answered by decomposing the variance of daily measures into between- and within-person variance components. Accordingly, we found that

roughly half the variance, on average, in specific daily features and domains was attributable to between-person variance. This portion of variance is the most theoretically akin to traditional conceptualizations of traits as stable individual differences (Fleeson, 2001). By extension, approximately half of the variance in feature expression was attributable to day-to-day fluctuations. It is difficult to provide a concrete anchor for this level of variability. On the one hand, it would be hard to imagine conducting this study in a non-clinical comparison sample due to anticipated problematically low rates of endorsement. Therefore, we note that our ICCs are comparable to those derived from daily studies of affect in non-clinical samples (ICCs = .52–.56; e.g., Charles & Almeida, 2006; Merz & Roesch, 2011). Our ICCs are slightly higher than momentary studies of big-five trait relevant behavior, which tend to average around .35 (Fleeson & Gallagher, 2009; Sherman et al., in press), but this is arguably a poor comparison given the differences in sampling frame (daily versus momentary assessments). On the other hand, given the emphasis placed on stability of behavior in the DSM, this level of instability may best be interpreted as unexpectedly high from that perspective.

We note, though, that the daily variables differed considerably from each other in ICCs. Interestingly, those variables that had the lowest ICCs also were the least frequently endorsed (r_s item/domain = .53/.66), were more skewed (r_s = .58/.72), and kurtotic (r_s = .56/.70). These patterns, coupled with a visual inspection of Figure 2 and the supplementary figures suggests that certain PD trait manifestations, namely those encompassed by Impulsivity, Urgency, Hostility, and Manipulativeness domains, may be best characterized by *episodic variability* (Wood, 2012), such that they spike and then resolve, even among those who endorse them at higher rates. In contrast, the remaining domains with higher ICCs tended to be characterized by individual time-series with fluctuations around an individual's set point. For these domains the patterns of fluctuation are perhaps better described as *oscillatory* in nature. These differences in patterns of variability across domains are suggestive of differences in processes underlying them. For instance, features of Impulsivity, Urgency, Hostility, and Manipulativeness vary jaggedly across days, alluding to a process whereby a baseline of non-expression is punctuated by instances of regulatory failure, reactivity, and opportunism. Domains such as Negative Affectivity, Detachment, Exhibitionism, Compulsivity, and Psychoticism tend to wax and wane around what appear to be an individual's set point, reminiscent of a system seeking to maintain stability. To illustrate, despite falling within the same content domain in psychometric investigations (Sharma, Markon, & Clark, 2014; Whiteside & Lynam, 2001) daily Negative Affectivity appears to follow an oscillatory pattern consistent with homeostatic regulation (e.g., Kuppens, Oravecz, & Tuerlinckx, 2010), but daily Urgency reflects brief but poignant maladaptive flare-ups when such regulation critically fails. Although plausible, these types of hypotheses beckon further and more in depth inquiry. Future research that delves into similarities and differences in the patterns of variability across daily PD features and domains may yield fruitful insights into the causes, concomitants, and contingencies of these problematic behaviors.

We next asked *how stable are individual differences in average levels and fluctuations in daily PD manifestations?* Although thus far our discussion has emphasized the variable nature of daily PD features, it is important to recognize that there are also aspects of high

stability. We found very high levels of differential stability in traits across thirds of the assessment period. That is to say, individuals maintained their relative position to each other in terms of average endorsement from month to month. Furthermore, as others have noted previously, variability often operates like a dynamic individual difference variable, such that there is interindividual heterogeneity in the amount and patterning of this variability (e.g., Kuppens, Van Mechelen, Nezlek, Cossche, & Timmermans, 2007; Larsen & Kasimatis, 1990; Moskowitz & Zuroff, 2004). Indeed, prior studies examining momentary affect and event level interpersonal behavior have found variability in behavior to be highly stable across weeks (Eid & Diener, 1999; Fleeson, 2001; Moskowitz & Zuroff, 2004). Similarly here we found impressively high levels of differential stability in daily manifestation variability from month to month. In other words, variability in daily PD manifestations tends to operate like a stable individual difference in its own right. This is consistent with perspectives that argue that personality is not defined solely in terms of average levels, but in terms of consistency in the contingent and contextualized patterning of behavior (e.g., Mischel & Shoda, 1995). Similar conceptualizations have been furthered for PD (Eaton, South, & Krueger, 2009; Pincus, Lukowitsky, Wright, & Eichler, 2009), and some investigations with BPD provide initial support (e.g., Berenson et al., 2011; Sadikaj et al., 2013). Nevertheless, this is an area ripe for future inquiry.

Subsequently, we asked, *are daily mean levels of PD manifestations predicted by dispositionally rated personality traits?* We found that traits were robust predictors of daily PD feature endorsement, with effect size (R^2) estimates ranging from .18–.45. These findings join a growing body of literature in normative samples that find that dispositionally assessed traits are good predictors of trait levels assessed from momentary and daily diaries (e.g., Church et al., 2008; Fleeson, 2001; Fleeson & Gallagher, 2009; Heller, Komar, & Lee, 2007; Sharma, Kohl, Morgan, & Clark, 2013; Sherman et al., in press; Wu & Clark, 2003). Thus, traditional methods of assessing traits as abstractions of how the individual sees themselves over long periods of time converge with their trait level as assessed using intensive repeated measurement.

Differences in the patterns of association between the univariate and multivariate models bear underscoring. When each DSM-5 trait domain was entered alone as a predictor we found widespread significant associations, such that each dispositional trait predicted individual differences in most daily domains. Although this could potentially raise concerns about discriminant validity (Crego et al., 2015), an alternative perspective is that these diffuse patterns of associations are driven by the shared general PD variance (e.g., Hopwood et al., 2011; Sharp et al., 2015) found in the DSM-5 domains. Yet by including all DSM-5 domains as covariates, remarkable specificity in associations was observed. In the majority of cases the DSM-5 domain was the sole specific predictor of the corresponding daily domain. In certain instances (e.g., predicting daily Hostility), there was a need to pursue even higher specificity by including PID5 facet scales that were not represented in the PID5 scored domains. Accordingly, our findings closely mirror those in basic personality science in normative samples, showing that dispositionally rated pathological traits converge with trait estimates derived from daily diaries, despite the major methodological differences.

Finally, we posed the question, *are individual differences in PD feature fluctuation predicted by dispositionally rated personality traits?* The results showed that individuals higher in any of the dispositionally rated PD dimensions generally reported more variable manifestations of daily PD. These associations were largely attenuated when controlling for daily means. That the mean and variance of an individual's daily scores are so tightly linked can be interpreted in several ways. Some have interpreted this in terms of ceiling and/or floor effects, suggesting that the mean should be controlled for to address this measurement artifact (Eid & Diener, 1999). An alternative perspective is that mean and the variance are strongly correlated due to the nature of the process being observed. As mentioned above, in several of the domains, the pattern of the observed time-series might best be described as episodic variability, characterized by spikes and returns to baseline. Individuals who report more and greater intensity episodes will have both larger means and variances, even if they share a baseline with those lower in each index. In this case, the more frequent and intense episodic daily reactions also happen to result in a higher daily mean, but it is not an artifact. As such, dispositional scales may best be understood as predicting higher levels of these processes in an individual. Continued work in this area employing additional metrics of variability is needed.

In general, our findings shed new light on how short-term stability in personality pathology should be conceptualized. Descriptive terms such as “inflexible” and “pervasive” as used by the DSM have lacked specificity and, frankly, any systematic evidentiary base. Indeed, declaring that individuals are unstable, labile, rigid, or inflexible are actually statements about degree of variability in behavior over time, and therefore are amenable to and require testing using appropriate methods. The results presented here suggest that, on average, daily PD manifestations are as variable as daily affect. Additionally, there are differences in the patterning of variability between traits that offer exciting new avenues for inquiry. At the same time, we wish to highlight that this degree of variability is not inconsistent with a dimensional trait approach to understanding PD, as traits are significant predictors of between person differences in average levels and variability (*iSDs*). Moreover, it should be clear that a trait approach does not imply unwavering stability across time and situations, nor that someone will even express relevant maladaptive behaviors on most days. Contemporary theorizing is doing away with this caricature of traits, and seeking for meaningful integration of the structure of individual differences and within-person dynamic processes (DeYoung, 2015; Fleson & Jayawickreme, 2015; Hopwood, Zimmermann, Pincus, & Krueger, 2015; Wright, 2011; 2014). We would suggest this study provides further evidence in support of this aim by demonstrating that dispositional dimensional traits are highly relevant for understanding daily PD manifestations, even as those manifestations vacillate in ways that hint at additional processes that need to be understood through more research.

In fact, we would argue that demonstrations of variability, per se, should not be the end game (cf. Houben, Van Den Noortgate, & Kuppens, 2015). Rather, understanding the dynamic processes that such variability betrays is the ultimate goal. Evidence of significant and reliable variability in behavior is not to be undervalued, as it provides the crucial condition for further examinations of more nuanced and complex processes. With this evidence now in hand, we can now ask more sophisticated questions about the conditions under which PD is exacerbated, maintained, and, hopefully, diminished or even

extinguished. Recent research has begun to examine this very question in BPD, seeking to uncover and clarify the contingencies of symptom expression (Miskewicz et al., 2015). Our results suggest that not only is this an important avenue for research, but that it should be extended beyond BPD to include other forms of personality pathology. These findings also make clear that “traits” of personality pathology exist at varying levels of “traitedness,” a finding that has conceptual and applied significance as we look to clarify the definition of PD used by the field.

These initial results, especially if extended in the ways outlined in the preceding paragraph, have implications for the DSM’s general criterion that PD manifestations are “inflexible and pervasive across a broad range of personal and social situations” (Criterion B in Section II, pg. 646, and Criterion C in Section III, pg. 761). In much the same way that prospective macro time-scale studies led to a change from characterizing PDs as stable to relatively stable, studies on the micro time-scale raise questions about the precision and best articulation of this other criterion. For clinicians, appropriate calibration and awareness of the degree of stability and variability in PD is important when considering differential diagnoses that also have prominent temporal features (e.g., bi-polar disorder, seasonal affective disorder, etc.).

Limitations & Future Directions

The current study benefited from a relatively large sample of individuals diagnosed with PDs who provided daily diaries at a high rate of compliance over a long study period (100 days). However, the results must be considered in the context of several limitations. For one, there was a relatively large gap between the time in which participants were assessed for PDs and when they completed the daily diary study (~1.4 years). During this time, any manner of internal and external influences may have led to changes in their clinical and psychological profile. Although detailed information on clinical interventions is not available, we note that on the average, participants enrolled in this phase of the study were highly stable across the intervening time period on a host of PD and functioning variables, suggesting that they remained largely the same in terms of their features (see Wright, Calabrese, et al., 2015, for details).

Second, we used a measure for daily features that was designed *de novo* for this project. Therefore it lacks prior validation, and may suffer from unknown limitations that may negatively impact the results. Some limitations are evident when considering the item content; the daily indicators lacked content in certain relevant features such as Callousness, Unusual Beliefs, Entitlement, and Dependency, to name a few. This leaves important gaps in measured content, despite our efforts to provide a comprehensive assessment of daily PD features. Furthermore, each specific facet of daily PD was measured with a single item. As a result, relatively broad constructs were boiled down to single indicators that may be, but more likely are not, reasonable proxies for the full constructs. Better measurement of each facet would include multiple indicators. Work is currently underway to develop broader item banks for daily PD measurement, but this was not the aim of the current study.

A further consideration that applies to both our sample and measures is one of non-specificity. Our sample was purposefully broad, and therefore there was high comorbidity,

including non-PD diagnoses, and our measures (both the PID5 and daily assessments) included content that has traditionally been conceptualized as symptoms of non-PD clinical syndromes. Given the widespread comorbidity in real-world clinical samples, our sample should thus have generalizability. As for the measures, we view the domains outlined in the DSM-5 AMPD as being reasonable instantiations of crosscutting dimensions or transdiagnostic domains relevant to both PDs and clinical syndromes (Wright & Simms, 2015).

In addition, our results are exclusive to the domain of self-report, and clinical experience, theory, and past research (e.g., Carlson & Oltmanns, 2015; Klonsky, Oltmanns, & Turkheimer, 2002; Leary, 1957) all would suggest that among individuals with PD, discrepancies exist between an individual's self-perception and the perception others hold of the person's behavior. Therefore, our results generalize to the individual's perspective on his or her own behavior as he or she experiences it. Future research should endeavor to capture the perspectives of multiple informants in order to fully appreciate dynamic processes in PD (e.g., Roche, Pincus, Rebar, Conroy, & Ram, 2014). This is not without challenges because other informants only have access to the information they themselves are present for and will be subject to perceiver effects. Nevertheless, the use of close significant others (e.g., spouses, cohabiting romantic partners) may be able to provide some perspective on this issue. Alternatively, or in conjunction, research designs may be able to leverage measures that vary in their focus, endeavoring to capture potentially divergent levels of experience, including motivations, goals, perceptions, and behavior, to provide richer perspectives on individual processes. Yet, that self-reports capture the individual's unique perspective on his or her daily experience should not diminish their value because it is often the individual's experience that is precisely what clinicians are working directly with in assessment and treatment.

We investigated dynamic processes at the daily level, and extended our sampling period to over three months. We deliberately chose this time scale to ensure that we would capture what we thought might be relatively rarely occurring behavior, even among a highly impaired clinical sample. Yet it is clear that important dynamic processes play out across several time scales, ranging from the momentary (e.g., Russell et al., 2007; Sadikaj et al., 2013; Trull et al., 2008) to the yearly (Morey & Hopwood, 2013), and everything in between (e.g., Wright, Hallquist, et al., 2013; Wright, Scott, et al., 2015). Although end-of-day diaries are commonly used in the study of the types of variables examined here (e.g., Bolger & Zuckerman, 1995; Sharma et al., 2013; Wu & Clark, 2003), researchers are encouraged to give deep consideration to the precise level of temporal fidelity necessary to target the processes of interest in their study (Collins, 2006). This consideration is not only theoretical but also practical, as asking participants to repeatedly report on rarely occurring events can be burdensome and threaten validity (Shiffman, Stone, & Hufford, 2008). Thus, our results generalize only to the daily level, which allows for the study of dynamics that are not possible in cross-sectional studies and those of less frequent assessment, but will miss processes that play out on a briefer time scale. Different domains may suggest different time scales of assessment, and future work may wish to directly compare different time scales across diverse domains.

A final consideration is that our sample had greater representation of Internalizing relative to Externalizing psychopathology, likely as a result of being recruited from treatment settings. This may have affected the results, including the reported rates and patterns of certain daily variables (e.g., Hostility, Manipulativeness, Impulsivity). In turn this may have had effects on the patterning of fluctuations in these relevant variables (see Supplementary Figures) and the ability to detect associations between dispositional scales and daily domains. Future work is needed that would use similar methods in samples recruited for Externalizing psychopathology.

Conclusion

Clinical description of PD phenomena emphasizes nuanced dynamic processes that suggest variability in behavior over time and across situations. In actuality, the question of short-term stability in PD features has largely escaped systematic empirical attention. In this naturalistic study, we examined this issue and found PD features to exhibit both variable and stable aspects over the course of 100 days. These results point toward the importance of studying pathological personality traits as dynamic individual differences. This perspective has increasingly been adopted in basic personality science as methods for intensive repeated measurement in participants' own environments have become widely accessible. As the diagnostic nosology slowly begins to incorporate a scientifically supported structure of personality pathology in the form of dimensional traits, consideration should also be given to the general criteria for PD, which assert that it is a stable and pervasive form of pathology. However, considerably more research on this topic is necessary. These findings pave the way for more fine-grained mechanistic research that further specifies key processes by focusing in on more narrow traits, time-varying predictors, and temporal patterning in daily features.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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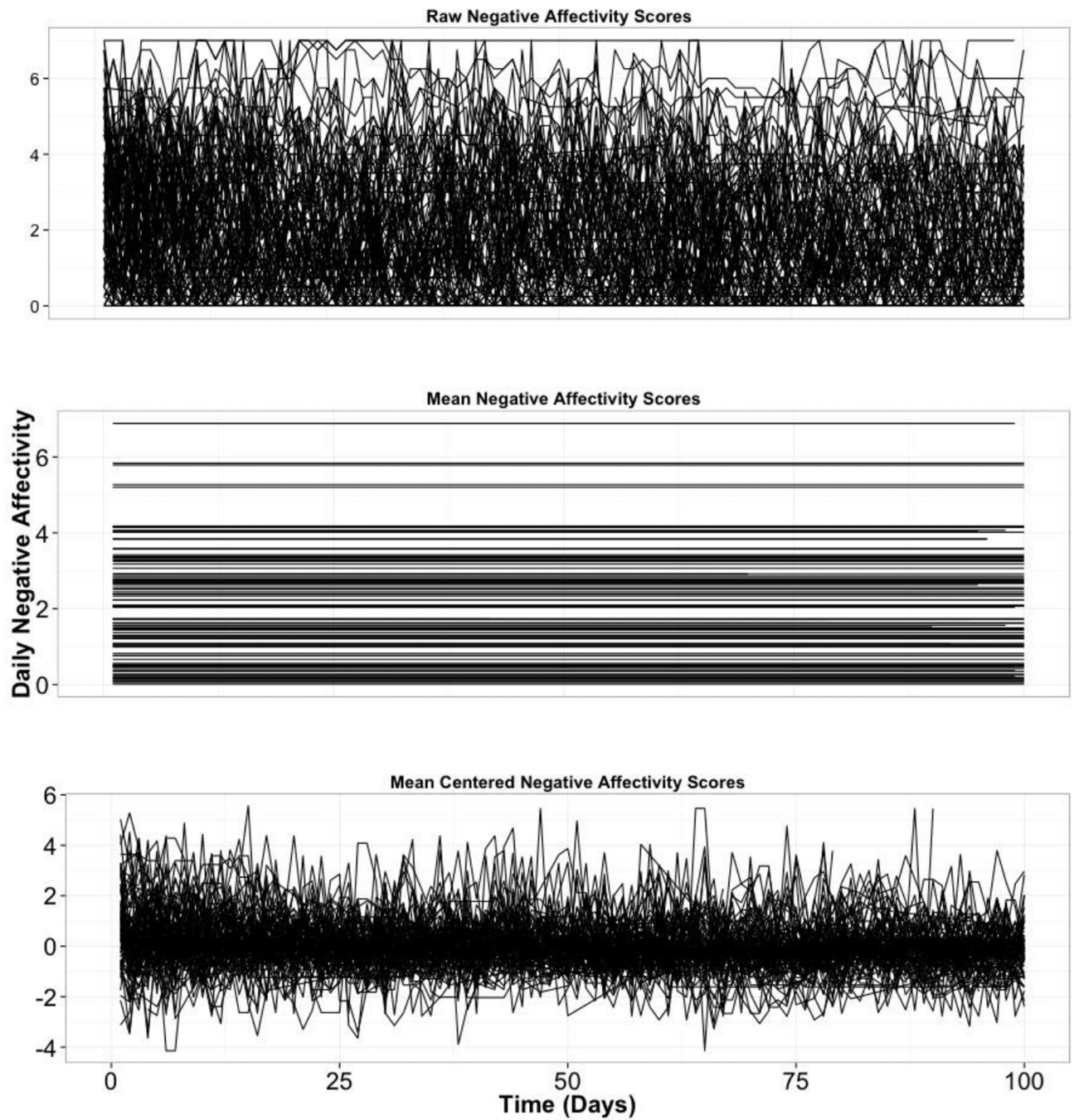


Figure 1.

Plots of raw (i.e., total), mean, and mean centered (i.e., time-varying) daily Negative Affectivity scores across all individuals over the course of the 100-day study.

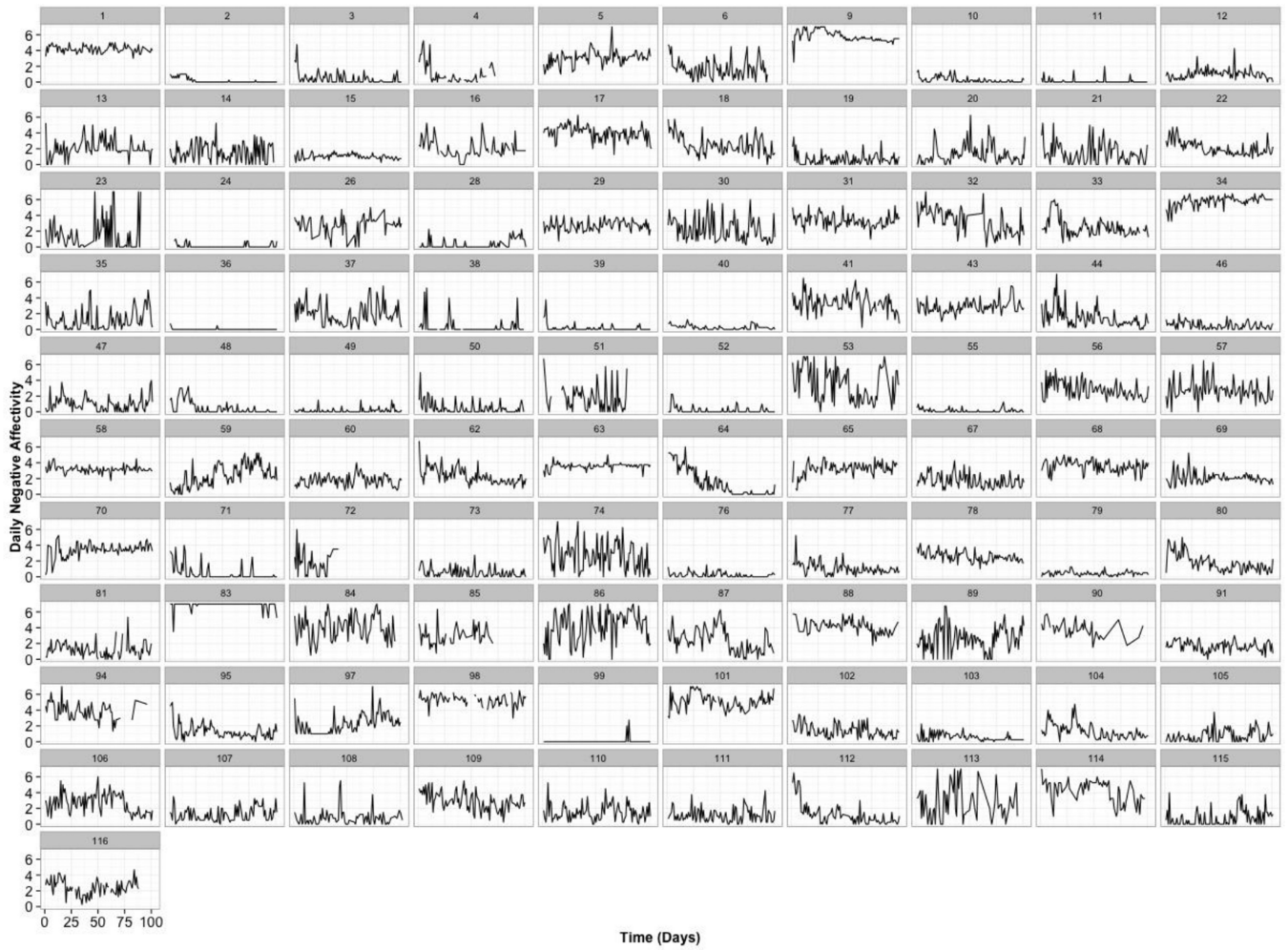


Figure 2.
Individual plots of daily Negative Affectivity ratings time-series.

Table 1

Sample Demographics

	N/M	%/SD
Age	44.9	13.3
<i>Gender</i>		
Male	35	34.7
Female	66	65.3
<i>Race/Ethnicity</i>		
White	83	82.2
Black	15	14.9
Native American	3	3.0
Hispanic	5	5.0
<i>Education</i>		
No High School Diploma	6	6.0
High School Diploma	16	15.8
Some College	34	33.7
College Degree	28	27.7
Graduate/Professional	17	16.8
<i>Employment</i>		
Employed	35	34.7
Unemployed	13	12.9
Disabled	33	32.7
Retired	9	8.9
Student	5	5.0
Homemaker	3	3.0
<i>Income</i>		
Less than \$15,000	26	25.7
\$15,000-\$29,999	23	22.8
\$30,000-\$44,999	20	19.8
\$45,000-\$59,999	13	12.9
More than \$60,000	19	18.9
<i>Marital Status</i>		
Married	27	26.7
Widowed	5	5.0
Divorced	18	17.8
Separated	3	3.0
Never Married	48	47.5

Note. N = 101.

Table 2

Descriptive statistics for endorsement of daily PD trait manifestations.

<i>Individual Features</i>	<i>Between-Person Variance</i>	<i>ICC</i>	<i>95% CI</i>	<i>Ever >0.0</i>	<i>Percentage Endorsement</i>							
					<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
1. Emotional Lability ^{P, C}	.58	ICC	[.52, .65]	100%	40%	13%	12%	11%	8%	5%	4%	6%
2. Anxiousness ^{P, C}	.59		[.52, .66]	98%	31%	13%	12%	11%	8%	8%	7%	8%
3. Depression ^{P, C}	.59		[.52, .65]	98%	37%	13%	11%	9%	8%	7%	6%	10%
4. Separation Insecurity ^{P, C}	.67		[.61, .73]	86%	63%	12%	7%	5%	3%	3%	3%	4%
5. Negative Urgency ^U	.35		[.29, .42]	88%	77%	8%	5%	3%	2%	2%	1%	2%
6. Urgency ^U	.39		[.32, .45]	95%	58%	13%	9%	7%	4%	3%	2%	3%
7. Anhedonia ^{P, C}	.43		[.37, .50]	100%	45%	11%	11%	9%	6%	5%	6%	7%
8. Withdrawal ^{P, C}	.53		[.46, .60]	99%	45%	11%	11%	9%	7%	6%	6%	6%
9. Restricted Affectivity ^{P, C}	.58		[.51, .65]	94%	51%	12%	8%	7%	5%	5%	5%	6%
10. Attention Seeking ^{P, C}	.34		[.28, .41]	70%	87%	5%	3%	2%	1%	1%	<1%	<1%
11. Grandiosity ^{P, C}	.55		[.48, .62]	86%	67%	9%	7%	5%	4%	3%	2%	3%
12. Intimacy Avoidance (-) ^{P, C}	.68		[.61, .73]	99%	43%	16%	11%	8%	7%	6%	3%	8%
13. Anger ^C	.27		[.22, .33]	97%	72%	10%	6%	4%	3%	2%	2%	2%
14. Rudeness ^C	.26		[.21, .32]	95%	80%	8%	4%	2%	2%	1%	1%	2%
15. Hostility ^P	.44		[.37, .51]	70%	87%	4%	2%	1%	1%	1%	1%	2%
16. Hostile Aggression ^C	.34		[.28, .40]	89%	81%	7%	4%	2%	2%	2%	1%	2%
17. Manipulativeness ^{P, C}	.30		[.25, .37]	70%	91%	5%	2%	1%	<1%	<1%	<1%	<1%
18. Deceitfulness ^P	.29		[.23, .35]	87%	84%	8%	4%	2%	1%	1%	<1%	1%
19. Impulsivity ^{P, C}	.31		[.25, .37]	93%	70%	10%	6%	5%	3%	3%	2%	2%
20. Risk Taking ^{P, C}	.10		[.08, .13]	55%	96%	2%	1%	<1%	<1%	<1%	<1%	<1%
21. Irresponsibility ^{P, C}	.29		[.24, .36]	86%	79%	8%	5%	3%	2%	1%	1%	1%
22. Rigid Perfectionism ^{P, C}	.55		[.48, .62]	91%	53%	12%	9%	8%	7%	6%	3%	2%

Individual Features	Percentage Endorsement										
	Between-Person Variance		Daily								Ever
	ICC	95% CI	> 0.0	0	1	2	3	4	5	6	7
23. Rigidity <i>C</i>	.53	[.46, .59]	94%	58%	12%	9%	7%	6%	5%	2%	2%
24. Workaholism <i>C</i>	.44	[.37, .51]	90%	69%	8%	7%	5%	4%	3%	2%	2%
25. Dissociation <i>P, A</i>	.61	[.55, .68]	83%	79%	7%	4%	2%	2%	2%	1%	3%
26. Hearing things <i>P, A</i>	.77	[.71, .81]	58%	92%	3%	1%	1%	1%	<1%	1%	2%
27. Cognitive Problems <i>P, C, A</i>	.56	[.49, .63]	94%	64%	11%	7%	5%	4%	3%	2%	3%
28. Fantasy Proneness <i>C</i>	.56	[.49, .62]	82%	71%	11%	6%	4%	3%	2%	1%	2%
29. Eccentricity <i>P</i>	.58	[.51, .65]	79%	75%	7%	5%	4%	3%	2%	1%	2%
30. Suspiciousness <i>P</i>	.55	[.48, .61]	93%	51%	12%	11%	8%	5%	4%	4%	5%

Descriptive Statistics									
Domains	ICC	95% CI	Alpha (W/B)	<i>M</i>	<i>Mdn</i>	<i>SD</i>	<i>Skew</i>	<i>Kurtosis</i>	
Negative Affectivity	.67	[.60, .73]	.76/.88	1.98	1.50	1.78	0.81	2.89	
Urgency	.41	[.34, .48]	.82/.95	0.93	0.00	1.55	2.09	7.04	
Detachment	.60	[.54, .67]	.64/.84	1.84	1.33	1.85	0.95	3.03	
Exhibitionism	.60	[.54, .67]	.49/.64	1.06	0.67	1.14	1.14	3.96	
Hostility	.35	[.29, .42]	.87/.93	0.59	0.00	1.18	2.76	11.17	
Manipulativeness	.34	[.29, .41]	.64/.77	0.26	0.00	0.70	3.93	22.58	
Impulsivity	.33	[.27, .40]	.69/.82	0.49	0.00	0.90	2.57	11.37	
Compulsivity	.59	[.52, .66]	.64/.82	1.19	0.67	1.42	1.22	3.81	
Psychoticism	.70	[.63, .75]	.67/.89	0.78	0.33	1.07	2.21	9.09	

Note. Person-Level *N* = 101; Daily-Level *N* = 9,041. Wording for individual manifestations can be found in Supplementary Table S1.

P Based on Personality Inventory for DSM-5 scale;

C Based on Computerized Adaptive Test for Personality Disorders scale;

U Based on Urgency Premeditation Perseverance Sensation Seeking Inventory scale;

A Alternate features associated with PID5 Cognitive and Perceptual Dysregulation scale. When a feature is based on scales in both PID5 and CAT-PD the PID5 scale name was used.

Table 3
Descriptive statistics for individual means (*M*s) and standard deviations (*i*.*SD*s) in daily PD trait manifestation domains.

	<i>M</i>	<i>Mdn</i>	<i>SD</i>	<i>Skew</i>	<i>Kurtosis</i>
<i>Individual Level (iM)</i>					
Negative Affectivity	2.02	1.72	1.47	0.80	3.43
Urgency	0.98	0.69	1.02	1.55	5.26
Detachment	1.87	1.46	1.45	0.93	3.14
Exhibitionism	1.08	0.83	0.91	1.04	3.83
Hostility	0.62	0.36	0.72	1.55	4.69
Manipulativeness	0.28	0.11	0.43	3.19	16.05
Impulsivity	0.51	0.33	0.53	1.38	4.60
Compulsivity	1.20	0.85	1.11	0.96	3.30
Psychoticism	0.80	0.57	0.90	2.26	9.89
<i>Individual Variability (iSD)</i>					
Negative Affectivity	0.95	0.90	0.44	0.46	3.00
Urgency	1.05	1.01	0.66	0.44	2.80
Detachment	1.10	1.09	0.44	0.31	2.49
Exhibitionism	0.65	0.60	0.33	0.56	2.55
Hostility	0.78	0.70	0.60	0.85	2.98
Manipulativeness	0.46	0.37	0.37	1.08	3.94
Impulsivity	0.63	0.54	0.42	0.79	3.20
Compulsivity	0.81	0.76	0.46	0.36	2.52
Psychoticism	0.50	0.46	0.33	0.75	3.26

Note. *N*=101.

Differential stability in individual level (mean) and variability (standard deviation) of daily PD trait manifestation domains across thirds of the assessment period.

Table 4

<i>Daily Domain</i>	<u>Mean Level (iM)</u>			<u>Variability (iSD)</u>		
	<i>r</i> ₁₋₂	<i>r</i> ₂₋₃	<i>r</i> ₁₋₃	<i>r</i> ₁₋₂	<i>r</i> ₂₋₃	<i>r</i> ₁₋₃
Negative Affectivity	.92	.93	.87	.63	.76	.60
Urgency	.83	.89	.77	.70	.76	.77
Detachment	.92	.91	.85	.69	.74	.61
Exhibitionism	.89	.94	.84	.71	.80	.60
Hostility	.78	.88	.69	.75	.78	.80
Manipulativeness	.82	.86	.75	.49	.63	.55
Impulsivity	.75	.85	.70	.69	.79	.72
Compulsivity	.90	.89	.74	.79	.85	.68
Psychoticism	.92	.94	.86	.78	.76	.70
Mean	.87	.90	.79	.70	.77	.68
Minimum	.75	.85	.69	.49	.63	.55
Maximum	.92	.94	.87	.79	.85	.80

Note. *N* = 101. All correlations significant at *p* < .001.

Table 5

Predicting individual differences in rates of daily PD trait manifestation domain endorsement from dispositional ratings of DSM-5 PD domains

Daily Dimension	DSM-5 Pathological Trait Domains														
	Negative Affectivity			Detachment			Antagonism			Disinhibition			Psychoticism		
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>
<i>Univariate Models</i>															
Negative Affectivity	0.84	0.13	< .001	0.49	0.14	.001	0.35	0.14	.015	0.66	0.14	< .001	0.72	0.16	< .001
Urgency	0.38	0.10	< .001	0.18	0.12	.133	0.39	0.13	.003	0.29	0.09	.002	0.36	0.11	.002
Detachment	0.68	0.14	< .001	0.80	0.13	< .001	0.29	0.13	.019	0.73	0.13	< .001	0.56	0.15	< .001
Exhibitionism	0.09	0.09	.319	-0.16	0.08	.053	0.42	0.09	< .001	-0.02	0.09	.791	0.06	0.11	.587
Hostility	0.20	0.08	.012	0.14	0.09	.093	0.21	0.09	.021	0.21	0.07	.002	0.23	0.07	.001
Manipulativeness	0.07	0.04	.057	0.06	0.04	.130	0.14	0.06	.012	0.09	0.05	.049	0.04	0.04	.310
Impulsivity	0.15	0.05	.004	0.15	0.06	.010	0.19	0.06	.002	0.21	0.05	< .001	0.20	0.05	< .001
Compulsivity	0.26	0.11	.016	0.10	0.10	.290	0.37	0.11	.001	0.10	0.11	.360	0.12	0.13	.353
Psychoticism	0.32	0.10	.001	0.32	0.10	.001	0.18	0.10	0.60	0.30	0.08	< .001	0.48	0.11	< .001
<i>Multivariate Models</i>															
Negative Affectivity	0.59	0.16	< .001	0.04	0.18	.826	-0.02	0.15	.883	0.05	0.20	.788	0.36	0.21	.085
Urgency	0.20	0.12	.089	-0.02	0.14	.901	0.26	0.14	.057	-0.01	0.14	.951	0.17	0.14	.237
Detachment	0.24	0.18	.184	0.27	0.19	.002	0.05	0.13	.715	0.19	0.21	.381	0.03	0.18	.871
Exhibitionism	0.07	0.10	.520	-0.21	0.10	.029	0.45	0.08	< .001	-0.09	0.10	.406	0.02	0.10	.829
Hostility	0.04	0.11	.731	0.02	0.10	.855	0.13	0.10	.200	0.07	0.10	.506	0.11	0.09	.202
Manipulativeness	-0.02	0.07	.763	0.03	0.05	.603	0.14	0.07	.039	0.08	0.09	.374	-0.06	0.08	.447
Impulsivity	-.05	.06	.386	0.04	0.07	.533	0.14	0.07	.060	0.12	0.08	.157	0.09	0.08	.261
Compulsivity	0.24	0.14	.083	0.08	0.14	.546	0.34	0.11	.002	-0.17	0.16	.276	-0.06	0.15	.674
Psychoticism	0.06	0.09	.488	0.17	0.11	.137	0.02	0.11	.842	-0.11	0.11	.298	0.43	0.13	.001

Note. Person-Level $N=101$; Daily-Level $N=9,041$. All models estimated controlling for gender and age. Multivariate models included all Personality Inventory for DSM-5 entered simultaneously as predictors. Bolded values = $p < .05$.

Predicting individual differences in daily PD trait manifestation domain variability (*iSD*) from dispositional ratings of DSM-5 PD domains

Table 6

Daily Dimension	DSM-5 Pathological Trait Domains														
	Negative Affectivity			Detachment			Antagonism			Disinhibition			Psychoticism		
	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β
<i>Not Controlling for Mean</i>															
Negative Affectivity	0.15	0.04	0.34	0.05	0.04	0.11	0.11	0.04	0.25	0.13	0.04	0.30	0.08	0.04	0.19
Urgency	0.26	0.06	0.39	0.16	0.06	0.24	0.22	0.06	0.32	0.25	0.06	0.38	0.25	0.06	0.41
Detachment	0.13	0.04	0.29	0.13	0.04	0.30	0.09	0.04	0.20	0.17	0.04	0.38	0.11	0.04	0.26
Exhibitionism	0.08	0.04	0.23	0.00	0.03	-0.01	0.12	0.03	0.35	0.06	0.03	0.16	0.02	0.04	0.05
Hostility	0.20	0.06	0.34	0.14	0.06	0.23	0.16	0.06	0.25	0.21	0.06	0.34	0.24	0.06	0.39
Manipulativeness	0.08	0.04	0.20	0.07	0.04	0.20	0.12	0.04	0.31	0.09	0.04	0.24	0.06	0.04	0.16
Impulsivity	0.14	0.04	0.33	0.16	0.04	0.37	0.14	0.04	0.32	0.21	0.04	0.51	0.21	0.04	0.49
Compulsivity	0.11	0.05	0.24	0.05	0.05	0.12	0.11	0.05	0.22	0.05	0.05	0.10	0.19	0.05	0.19
Psychoticism	0.14	0.03	0.41	0.12	0.03	0.37	0.10	0.03	0.29	0.15	0.03	0.45	0.18	0.03	0.55
<i>Controlling for Mean</i>															
Negative Affectivity	0.11	0.05	0.24	0.00	0.04	0.01	0.09	0.04	0.19	0.09	0.05	0.20	0.02	0.05	0.05
Urgency	0.09	0.05	0.14	0.08	0.04	0.12	0.04	0.05	0.06	0.12	0.04	0.18	0.12	0.05	0.18
Detachment	0.04	0.05	0.08	0.02	0.05	0.05	0.05	0.04	0.11	0.09	0.04	0.19	0.04	0.04	0.09
Exhibitionism	0.06	0.03	0.19	0.03	0.03	0.09	0.06	0.03	0.16	0.06	0.03	0.18	0.01	0.03	0.02
Hostility	0.06	0.03	0.11	0.04	0.03	0.06	0.01	0.03	0.02	0.06	0.03	0.11	0.09	0.03	0.15
Manipulativeness	0.04	0.03	0.10	0.04	0.03	0.11	0.04	0.03	0.11	0.04	0.03	0.10	0.04	0.03	0.10
Impulsivity	0.05	0.03	0.11	0.07	0.03	0.16	0.02	0.03	0.04	0.09	0.03	0.23	0.09	0.03	0.22
Compulsivity	0.03	0.04	0.07	0.02	0.03	0.05	0.00	0.04	0.00	0.02	0.03	0.04	0.06	0.03	0.12
Psychoticism	0.06	0.03	0.18	0.04	0.03	0.13	0.06	0.03	0.16	0.08	0.02	0.25	0.08	0.03	0.24

Note. *N* = 101. *iSD* = individual standard deviation. All models estimated controlling for gender and age. Coefficients in the top half of the table are from models that do not control for daily dimension mean, whereas models in the bottom half do. Bolded values = *p* < .05.